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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,905

09/11/2003

John G. McDonough

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TEXAS INSTRUMENTS INCORPORATED

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EXAMINER

FOTAKIS, ARISTOCRATIS

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

07/14/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

Office Action Summary	Application No. 10/659,905	Applicant(s) MCDONOUGH ET AL.	
	Examiner ARISTOCRATIS FOTAKIS	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/01/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38 - 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38 - 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 01, 2009 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation "a search engine circuitry of a certain **number of independent correlators**" in lines 20 – 21 of page 3 and the limitation "sequence generator circuitry **coupled to** the hypothesis generator circuitry" in lines 6 – 7 of page 4 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 38 is objected to because of the following informalities: "an independent hypotheses" in line 2 of Page 4 could be corrected to "an independent hypothesis". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhards et al. (U.S. Pub. No. 2003/0012312) in view of Gurski et al (US 7,085,295) and further in view of Hughes et al (US 7,224,719).

Gerhards teaches of a digital wireless mobile communications device, comprising:

- A. an antenna for receiving analog, direct sequence spread spectrum wireless signals (Fig.1 and Paragraph 0033);
- B. analog circuitry having an input connected to the antenna and having an analog signal output (Paragraph 0010);
- C. analog-to-digital converter circuitry having an input connected to the analog signal output and having a digital signal output (Paragraph 0010);
- D. communications bus leads connected to the digital signal output (Fig.1);
- E. memory circuitry (#56 - #70, Fig.1) connected to the communications bus leads and providing storage locations (memory indices);
- F. unit control circuitry (#26, controller) having inputs and outputs connected to the communications bus leads, the unit control circuitry writing into partitioned memory storage locations (#56, #58, #60, #62, Fig.1, *an index memory is a partioned memory*, Paragraphs 0044, 0052, 0058) groups of independent hypothesis information (Paragraph 0007, *each group of hypotheses corresponds to a set of search parameters*, Gerhards discloses of reading sets of search paramters (first and second search

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parameters) to generate groups of hypotheses (one group for each search)), one group for each partitioned memory storage location (identified by indices, Paragraph 0040), and reading from each partitioned storage location a result of detection of direct sequence spread spectrum wireless signals (#68, Paragraph 0040); and

G. searcher circuitry connected to the communications bus leads, the searcher circuitry including: i. search engine circuitry of a certain number of independent correlators, in which the certain number is two or more (Fig.2); ii. hypothesis generator circuitry coupled to the communications bus leads and to the correlators (#56 - #62, Fig.2), the hypothesis generator circuitry reading each of the groups of independent hypothesis information from the memory circuitry and supplying an independent hypothesis to each of the independent correlators (Fig.2), the number of hypotheses read from the memory and supplied to the correlators being equal to or less than the certain number (*each correlator would receive a hypothesis, a PN code and the I,Q samples to perform the test*); iii. supplying a pseudo-random number sequence delayed by different respective amounts corresponding to the time offset (hypothesis) associated with the respective correlator so that each correlator is associated with a different time offset (Paragraph 0044), iv. control information storage locations, one for each correlator, coupled to the correlators (Paragraph 0044); and v. scratch memory storage locations, one for each correlator, coupled to the correlators (*accumulators #35, #37 of each correlator are scratch memory storage locations for continuously overwriting to what was previously stored*). However, Gerhards does not explicitly disclose of iii. sequence generator circuitry coupled to the hypothesis generator circuitry to supply the pseudo-random

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number sequence to each of the correlators, and vi. result processor circuitry coupled to and receiving a result from each correlator, the result processor circuitry testing an accumulation of the results from the correlators against a threshold, and storing at a partitioned storage location in the memory an accumulated result exceeding the threshold.

Gurksi teaches of a Rake receiver (Fig.3) wherein in a communications bus leads connected to the digital signal output (Fig.3); memory circuitry (#262, #332, Fig.3) connected to the communications bus leads; a sequence generator circuitry (C_{pn}) is coupled to the hypothesis generator circuitry (θ_s) to supply the pseudo-random number sequence to each of the correlators ($C_{pn}^* \theta_s$, PN generator) and control information storage locations, one for each correlator, coupled to the correlators (#332).

Hughes teaches of spread spectrum apparatus performing search acquisition wherein the apparatus comprises of a result processor circuitry (#44, Fig.4) coupled to and receiving a result from the correlator, the result processor circuitry testing the results (Col 7, Lines 14 - 35) from the correlator against a threshold (in #44), and storing at a storage location in the memory a result exceeding the threshold (#49, Fig.4) (Col 6, Lines 22 – 55 and Col 7, Lines 14 - 36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have had used hardware by having the sequence generator coupled to the hypothesis generator to execute the delay of the PN code with different PN offsets to provide the multiple hypotheses tests. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have only stored at

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a storage location in the memory an accumulated result exceeding the threshold in order to save memory spaces by not saving unneeded correlation values that failed the threshold test.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhards et al. (U.S. Pub. No. 2003/0012312) in view of Hughes et al (US 7,224,719).

Gerhards teaches of a process of detecting direct sequence spread spectrum wireless signals in a digital wireless mobile communications device, comprising:

- A. receiving direct sequence spread spectrum wireless signals in an antenna;
- B. converting the signals into digital information;
- C. placing groups of independent hypotheses in partitioned portions of a memory with a mobile control unit with one independent hypothesis in each partitioned portion of the memory (for A., B, C, see claim 38, Gerhards);
- D. operating search circuitry to: i. read the groups of independent hypotheses from the memory; ii. generate a pseudo-random number from each hypothesis (predefined code, Paragraphs 0007, 0033, *each correlator receives the same I and Q component bit streams 18 and 20 and further receives I and Q components of a reference bit stream which are labeled as I PN and Q PN 28 and 30, respectively*, Gerhards); and iii. operate correlator circuits (#34, Fig.2) using the independent hypotheses, pseudo-random numbers (predefined code) and digital information (I,Q samples) to produce results of detections (search results, Paragraph 0040, Gerhards), including operating

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the correlator circuits in parallel (as shown in Fig.2), each correlator circuit using one hypothesis, one pseudo-random number, and one portion of the digital information (Paragraph 0044) together with one control information storage space (Paragraph 0044), and one scratch memory storage space (*accumulators #35, #37 of each correlator are scratch memory storage locations for continuously overwriting to what was previously stored*). However, Gerhards does not specifically teach of testing accumulations of the results against a threshold; and F. placing an accumulated result that exceeds the threshold in a partitioned portion of the memory corresponding to a hypothesis that produced the result.

Hughes teaches of spread spectrum apparatus performing search acquisition wherein the apparatus comprises of a result processor circuitry (#44, Fig.4) coupled to and receiving a result from the correlator, the result processor circuitry testing the results (Col 7, Lines 14 - 35) from the correlator against a threshold (in #44), and storing at a storage location in the memory a result exceeding the threshold (#49, Fig.4) (Col 6, Lines 22 – 55 and Col 7, Lines 14 - 36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have only stored at a storage location in the memory an accumulated result exceeding the threshold in order to save memory spaces by not saving unneeded correlation values that failed the threshold test.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 6:30 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aristocratis Fotakis/

Examiner, Art Unit 2611
/Shuwang Liu/
Supervisory Patent Examiner, Art Unit 2611